

CASE STUDY #3 – AIR POLLUTION AND ACID RAIN IN JAPAN

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The issue

Acid rain has been a constant threat to the world's environment since the age of industrialization but only recently it has become a major concern across the globe, particularly among the industrialized nations—damaging trees, corroding buildings and killing lake ecosystems. Through a variety of regulations and enforced laws, countries have been taking serious action to try to defeat the problem of acid rain. However, it appears that this has become more of a problem for the Asian countries, particularly Japan and China (China more so than Japan) who are seen as the culprits in emitting toxic gases into the atmosphere threatening forests, air, and water in the Asian continent. Research has shown, however, that China is more at fault than Japan.

Description

Japan's laws and regulations concerning emissions of sulfur dioxide (SO₂) and oxides of nitrogen (NO_x) that cause rain to acidify are among the strictest in the world. So why is the rain as acidic today as it has ever been? The reason perhaps is a result of China's overwhelming use of coal burning machines which appear to be emitting toxins into the atmosphere thus being a major contributor to Japan's acid rain problem. The biggest producer of SO₂ emissions in Asia is China. The other major producers of the emission of sulfur dioxide in Asia are India, South Korea, and Japan in descending order.

It appears that the formation of acid rain in Asia is coming from two sources:

- 1.) Motor vehicles which are the primary source of acid-forming pollutants such as nitrogen oxides, and are responsible for growing levels of ground-level ozone, which hastens the formation of acid rain.
- 2.) Coal burning power stations which emit toxins such as sulfur dioxide (SO₂) and nitrogen oxides (NO_x) into the atmosphere.

Today there are various laws, regulations and treaties being enforced, but the problem is there is little effort being made to actually act upon these rules.

In the past 30 years Japan has seen the deterioration of trees, particularly pine and fir trees. Scientists detected an unusual active growth of pine bugs, and they believed that damage to these trees is a direct effect of acid precipitations and that the growth of bugs was induced by the acid.

The toxins in the air emitted by coal burning machines are affecting people's health. Infants, the elderly, and pregnant women who suffer from lung and heart illnesses as a result of acid rain precipitations are particularly the most vulnerable. Pollution alerts are common in many countries especially the U.K., U.S., and Japan to name a few. Those at risk are advised to avoid strenuous exercise or to stay indoors.

Acid rain and other pollutants are a widespread problem across the global atmosphere. The use of coal burning power plants is taking place everywhere. The emission of toxins such as SO₂ and NO_x into the atmosphere cannot be blamed solely on one country.

In 2006, Japan gave China \$7.2 million (U.S.) dollars to set up a system to monitor acid rain and sandstorms in China. The project, covering 25 provinces, autonomous regions and municipalities, includes 34 acid rain monitoring stations and 16 sandstorm monitoring stations. The Japanese government has already given aid to build 100 urban environmental protection networks in China. It will provide facilities to monitor acid rain and sandstorms and share data with China. The project would boost the Chinese government's ability to collect accurate data to tackle environmental problems, and to improve the environment across East Asia.